

## Linking Urban Form To A Liveable City

NORAZIAH ABDUL AZIZ & ABDUL SAMAD HADI

### ABSTRACT

*This paper intends to show the contribution and relationship of urban form to a liveable city, as many researchers pose the urban form as one of the factors that can worsen or improve the sustainability of the city. The paper will begin by exploring into the theoretical characteristics of the urban form at the macro and micro scale. Urban form models that match the Malaysian cities' urban form are illustrated in this paper with the idea of giving a larger context of the living ecology for Malaysian communities. There are two types of cities, one that grows in an ad-hoc manner, and the other is being shaped by planners. This paper however, focuses only on a planned city that is the core city for Shah Alam. Consequently, this paper touches briefly on the liveable city concept which is currently being debated among the researchers as a more practical way of looking into the sustainable city issues. The liveable city framework for the city of Shah Alam is discussed and some preliminary findings are offered at the end of the paper.*

### ABSTRAK

*Kertas ini bertujuan menunjukkan sumbangan dan pertalian bentuk bandar dengan bandar berdaya huni, kerana ramai pengkaji meletakkan bentuk bandar sebagai salah satu faktor yang boleh menurun atau meningkatkan kemampuan sesebuah bandar. Kertas ini dimulakan dengan menerokai ciri-ciri teoretikal bentuk bandar pada skala makro dan mikro. Model bentuk bandar yang menepati bentuk bandar Malaysia digambarkan dalam kertas ini dengan tujuan memberikan konteks yang lebih luas tentang ekologi kehidupan masyarakat bandar Malaysia. Terdapat dua jenis bandar, satu yang tumbuh secara spontan, dan satu lagi dibentuk oleh perancang. Kertas ini hanya memfokus kepada sebuah bandar terancang iaitu pusat bandar bagi Shah Alam. Seterusnya kertas ini menyentuh secara ringkas tentang konsep bandar berdaya huni yang kini diperdebatkan oleh para pengkaji sebagai suatu cara yang lebih praktikal dalam melihat isu bandar mampan. Kerangka bandar berdaya huni untuk bandar Shah Alam dibincangkan dan beberapa dapatan kajian awalan dinyatakan di akhir kertas ini.*

## INTRODUCTION

Looking into urban form has always been the subject and interest of the urban designers in particular and other groups including urban geographers. However, of late this subject has caused a trans-disciplinary grousers. The reason being the academia and urban managers have identified the urban form as the root for the city's physical, social and environment problems (Knox 1994; Alberti 2000; Newman & Kenworthy 2000; Ravetz 2000). However, if the urban space is viewed from a different angle, urban form is just a passive component of urban areas. Once it is designed and then constructed, it will be there until the city becomes obsolete. The main concern then is the implication of the urban form that affects the liveability of the urban space, how it organises and influences the life-world of the city people. Sharifah Norazizan Syed Abdul Rashid et al. (2002) has shown that the complexity and diversity of modern urban living have radically transformed the way people live, interact, communicate, travel and work. Nevertheless, the urban form of a city is unique, wherein each individual city displays morphologies and land use patterns ranging from the very formal and carefully ordered to the haphazard collections of buildings, spaces and activities (Kivell 1993: 3). This paper is about the influence of urban form on the everyday life of a city. It will illustrate how different urban forms within a city affect the daily life of the city dwellers, using some preliminary observations in Shah Alam Selangor as an illustration.

The term urban form carries a variety of meanings. It covers from the viewpoint of physical to non-physical characteristics of cities, at different levels, sizes, categories and functions of the cities. Most urban designers refer to the urban form as the 'built form' (Dovey 1999; Martin & March 1972), or 'townscape' (Ali Madanipour 1996), comprising three main components, the street plan or layout; architectural style of buildings and their design; and land use. Another rarely used term is the 'city shape' (Macionis & Parrillo 1998). Obviously, all of them are referring to the physical form of the city.

Meanwhile, the non-physical side of the urban form is its functions that relate to the users of the city. Frey (1999) opined that the city as a physical entity composes of many different elements which relate to each other functionally and spatially. There is also another simple definition from Cohen (2001). He maintains that the urban space creates the surrounding forms, from which all types of successful urban life spring forth and flourish. Nearer to the present and research need is Tsai's (2004) definition, where he cited Anderson's et al. 1996 definition of

urban form as the spatial pattern of human activities at a certain point in time. Tsai classified the spatial pattern of human activities into three categories: its density, diversity and spatial-structure (pattern). For this part of the definition, it is seen and interpreted as the lifeworld of the city people. In this paper urban form is taken to be characterised by both the physical and human dimensions that can be seen in the spatial structure of the city, supporting the city people activities and eventually making the city a liveable city. On the other hand, adhering to this definition gives rise to the question of 'what is a liveable city' for Malaysia. This issue is going to be looked into in a later part of the paper.

### THE CHARACTERISTICS OF URBAN FORM

Researchers have identified the characteristics of urban form based on the shape and growth pattern of the city. Some of the familiar terms given to the model of the city are core, star, satellite, galaxy, linear and polycentric city (Frey 1999; Haughton & Hunter 1994). But all of these are the general theoretical urban form. For the purpose of this paper the urban forms shown in Figure 1 are taken to represent the latest terms used to describe the characteristics of urban form for which there are six types (Newton 1997: 9).

These forms are:

***Business as usual or dispersed city*** - outward expansion of urban development at relatively low densities (10–30 persons per hectare), dominated by a central city (as the key economic node), and an associated radial transport networks.

***Compact city*** - increasing population and density of inner suburbs.

***Multi-nodal or edge city*** - increasing population, housing densities and employment at selected nodes within orbital freeways linking the edge cities.

***Corridor city*** - growing along linear corridors emanating from CBD and supported by public transport infrastructure.

***Fringe city*** - additional growth predominantly on the fringe of the city.

***Ultra-city*** - additional growth predominantly in provincial cities within 100 km of a capital city and linked by high-speed rail transport.

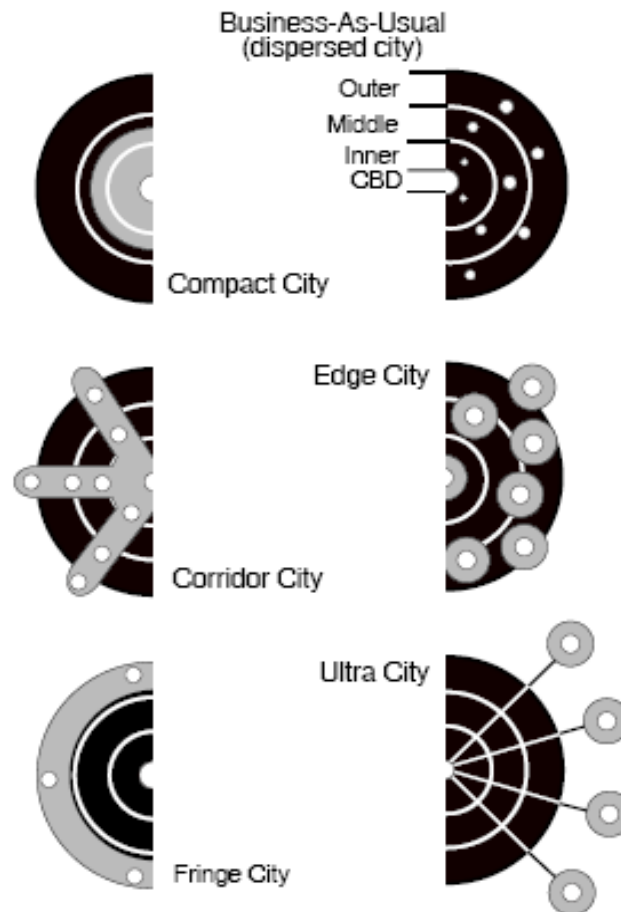


Figure 1. Archetypal urban system  
Source: Newton 1997: 9

The above diagram explains the physical distribution of cities. Yet the size, dimension, function or the catchment area of the city is not being specified, especially in the compact city type, such as the degree of compactness. However the degrees between compactness and sprawl have never been distinguished (Tsai 2004). Thus Tsai (2004) in his research gives additional light to the complex subject of urban form. In his research, he focuses on the metropolitan urban form. Figure 2 is taken

from Tsai (2004) which shows that urban form can be further refined into four dimensions: its size, density, distribution and clusters, and whether it's high or low. From the two Figures earlier a deduction can be made where CSIRO's diagram seems more suitable in explaining the urban formation at macro scale, giving the big picture of cities' growth in a particular region. Whereas Tsai's diagram is more appropriate for work at micro scale, showing the detail concentration of human settlements and the pattern of built-up areas in the city. Consequently, Tsai's conception is closer to the present research, and his scheme will subsequently be used more in the paper.

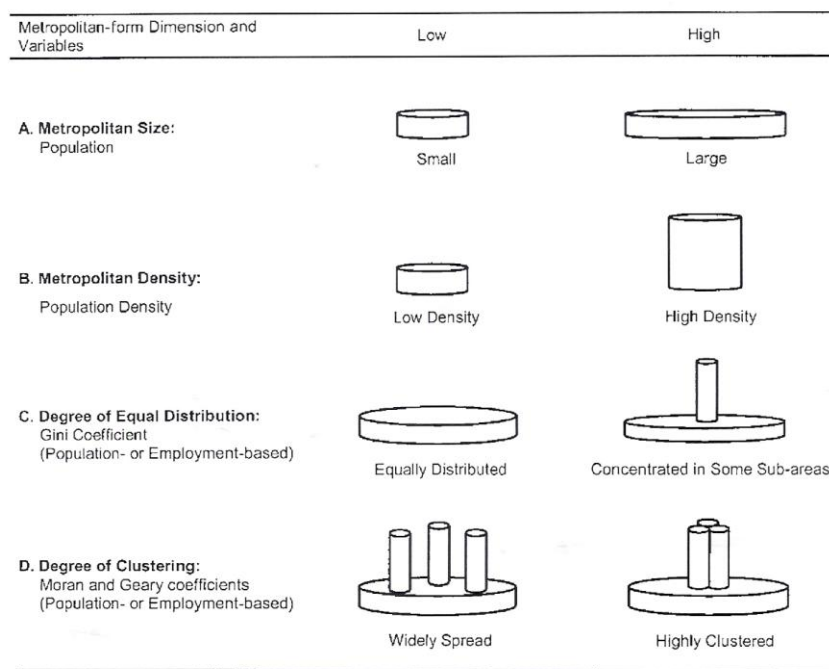


Figure 2. Four dimensions of metropolitan form  
Source: Tsai 2004: 144

## URBAN FORM AND LIVEABLE CITY

Liveable city concept is discussed here to give due focus on the urban communities. It has been widely used in the 1980's and 1990's in North America as a response to the continuing problems of urban sprawl and

car-dependent land use patterns (Auckland City 2000). Using the 'liveable city' concept is one way of recognizing the sustainability of the city, though according to Girardet (2004) liveability and sustainability are intimately connected, they are not always representing the same thing (Girardet 2004). Even the definition for 'sustainable cities' is still vague to many people (Eastaway & Stoa 2004; White 1994), especially with respect to the issue of what is to be sustainable. We feel, one way to come to grip with the sustainable city is to ground it on the life and activities of the people, hence the use of 'liveable city' to capture the serene but rewarding life of city people.

'Liveable' city nonetheless is a very subjective word also. What more if it concerns a liveable city. It is very similar to the old proverb '*beauty lies in the eyes of its beholder*'. Different people have different opinion to what they call a liveable city. Shortell (2005) however, points out that whether it is meaningful or not depends very much on the status of the country, whether it's a developed or developing country. This view coincides with Timmer & Seymoar's (2004) description of a liveable city where according to them it reflects the 'quality of life' (wealth and beyond) experienced by the city residents.

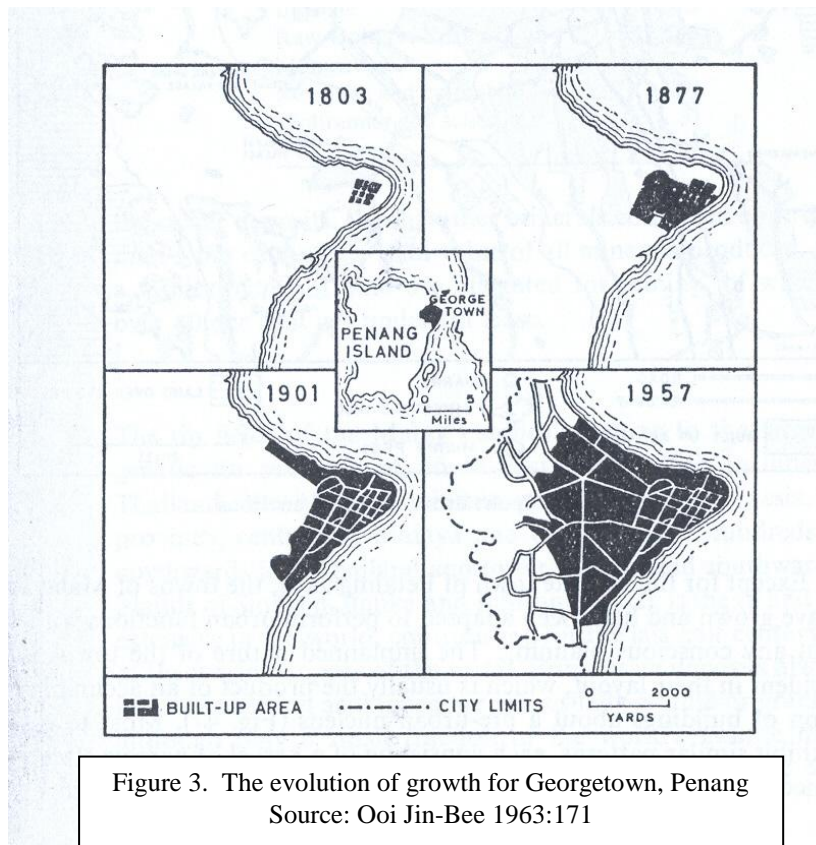
In comparing a livable city to a sustainable city concept, Douglass et al. (2004) maintain that a liveable city concept is to be more human centred; a liveable city should be 'healthy, convivial and socially just living, being shaped by the conditions of their natural and built environments'. In turn these are contributed by three interconnected dimensions, namely, environmental well being, personal well-being and lifeworld. While Metcalf (2002) and Girardet (2004) described the liveable city as having strong neighbourhoods and sufficient supporting facilities required within walking distance, a network of attractive public spaces and buildings, affordability, clean, vibrant with diverse street culture, and there are regional connections. It is to be borne in mind that each city is unique, for it is very much related to the type of the community it contains including the geographical factors and the financial status of that city governance. The expectation and requirement of the people also vary from city to city and these are reflected in the content of the city urban form, which also have some bearing on the definition of their liveable city.

For the purpose of this research 'liveable city' is defined as a vibrant and lively city where the communities enjoy congenial, pleasant and neighbourly multi-ethnic living environment, affordable, healthy and safe, with access to all the facilities they require and with a sense of belonging to the city. This definition will be used as the framework to

look into the liveability of Shah Alam city, taking the core city of Shah Alam as the case study.

### VARIETIES OF URBAN FORM IN MALAYSIA

On a general level there are two types of urban form, first, it is a city that starts its life from a small nucleus, without proper planning, and it expands as when required; second, the whole city starts from zero in the sense that an area is planned and built with proper guidelines (Heuvel 2000). Alexander referred to the first condition as ‘natural cities’ and the



second as ‘artificial cities’, and to him the ‘natural cities’ produce organic feelings where the city lives as a whole (cited by Martin 1972). These urban forms are not only seen among cities around the world but also in cities in the developing region of the world. Hence, this section intends to

explain the contribution of urban form to the liveability of the Malaysian cities.

Malaysia as a fast developing country demonstrates that its major cities' growth started in earnest in the 1970s. Most of the state capitals were built by the British planners during the early years of British colonization of the country, and they have modern urban forms. The size and shape of the cities evolved from nucleus of a small plot of land for example in the case of George Town, Penang (Figure 3) and Kuala Lumpur city (Figure 4). Then, with growth, they spread outwards. As time went by they grew to reach their present sizes, in response to the

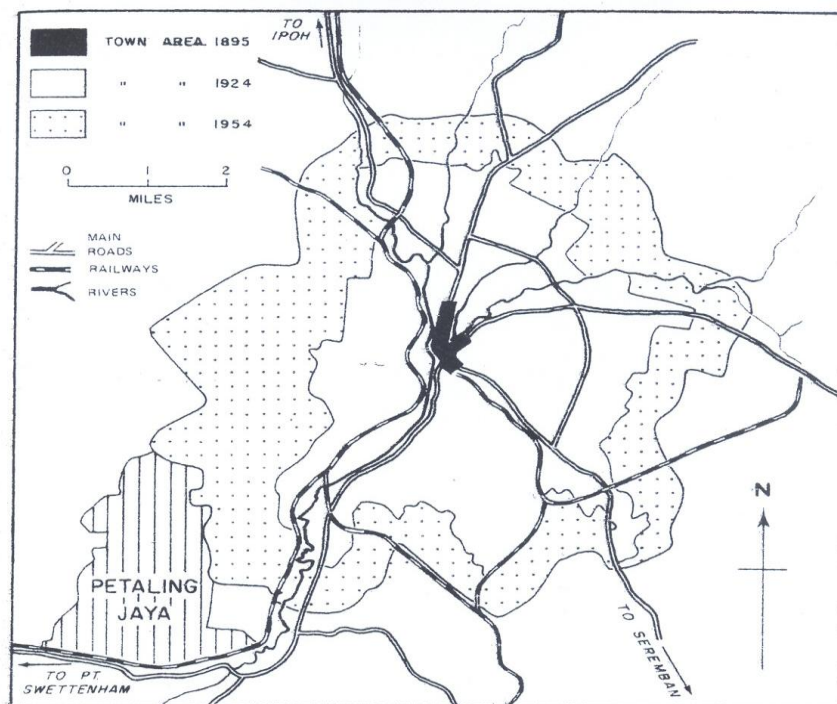


Figure 4. The evolution of growth for Kuala Lumpur City  
Source: Lim Heng Kow 1978: 105

various growth promotion activities as the country progresses in its modernisation path, as shown in Figure 5 for Georgetown, Penang and Figure 6 for Kuala Lumpur. The approach for development during that time was more piecemeal or as per requirement. Only during the early



1980s that the local authorities started to carry out their planning based on the development plan, beginning with Kuala Lumpur.



Figure 5. The current size of Georgetown, Penang  
Source: Google Earth (29/01/2007)

Applying the CSIRO diagrams as the theoretical basis in looking at the overall pattern of urban form in the State of Selangor to represent some of the general patterns of urban form in a region we can illustrate some behaviours of the urban growth experiences in the region. The State of Selangor is the most developed state in Malaysia, its urbanisation level for 2005 was 88.4% and the targeted level for 2010 is 89.1% (Malaysia 2006). From Figure 7 the urban forms of the major cities in this state are shown to illustrate the formation of cities at the regional scale. It is clear that the distribution of the cities matches the corridor city pattern in the

CSIRO diagram. The majority of these cities follow the federal motor routes. Such pattern is to be expected in Malaysia as the existence of conventional road system predated the highway system. The construction of highways which showcase some advance technology in road building came only in the 1970s. It can be stressed that more city growth is therefore, concentrated along the old federal motor roads. From the diagram, the highways tend to be close to Kuala Lumpur city to facilitate the movement of people into and out of the city.

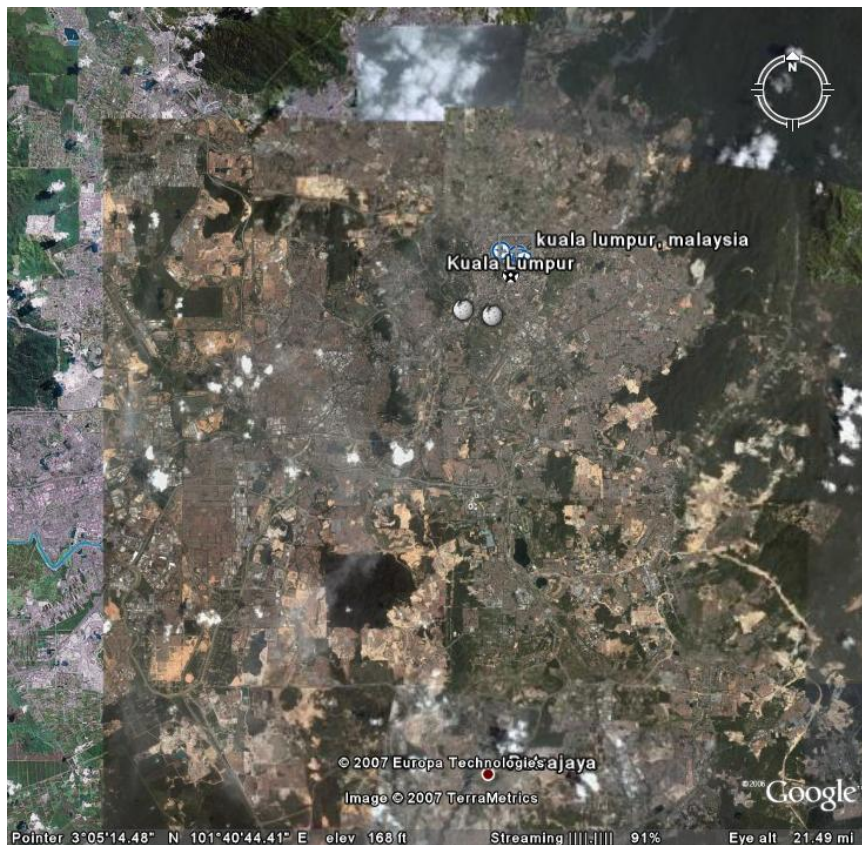


Figure 6. The current size of Kuala Lumpur City  
Source: Google Earth (29/01/2007)

These highways and major roads are in fact making contributions towards enriching and enhancing the Petaling Jaya, Subang Jaya and Shah Alam cities' developments. These cities have managed to sustain

their growth momentum to the extent that their edges have grown to merge into one another to produce a mega urban conurbation, never seen before in the country.

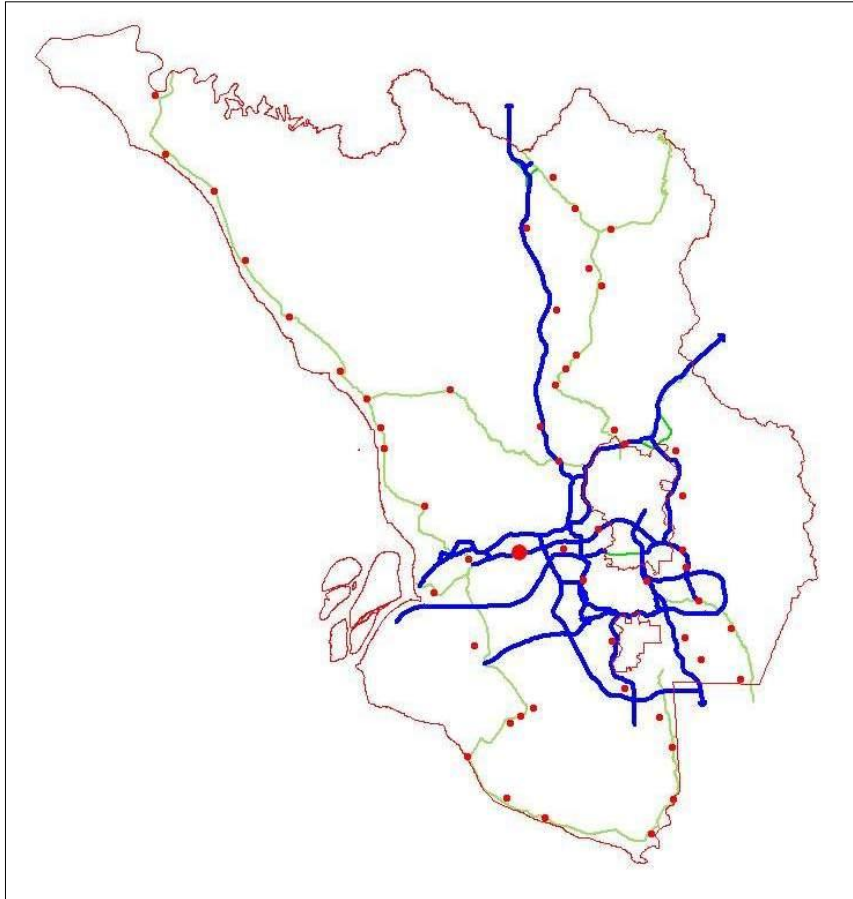


Figure 7. Location of towns and cities in Selangor State  
Source: Modified from JPBD Negeri Selangor 2003

Let us move the examination of the urban form to another level, that is looking at the three cities of Shah Alam, Subang Jaya and Petaling Jaya urban forms. Each of these cities is also a local authority by itself. Figure 8 shows the physical layout of the three cities. From the diagram, physically the whole combined urban form portrays compactness as well as sprawling development. The fringe of each city is not even noticeable.

It is difficult to make an assessment whether this phenomenon has positive or negative outcomes to the city people. At peak hours the traffic jams might start to build-up as far as 15 km outside Kuala Lumpur city.

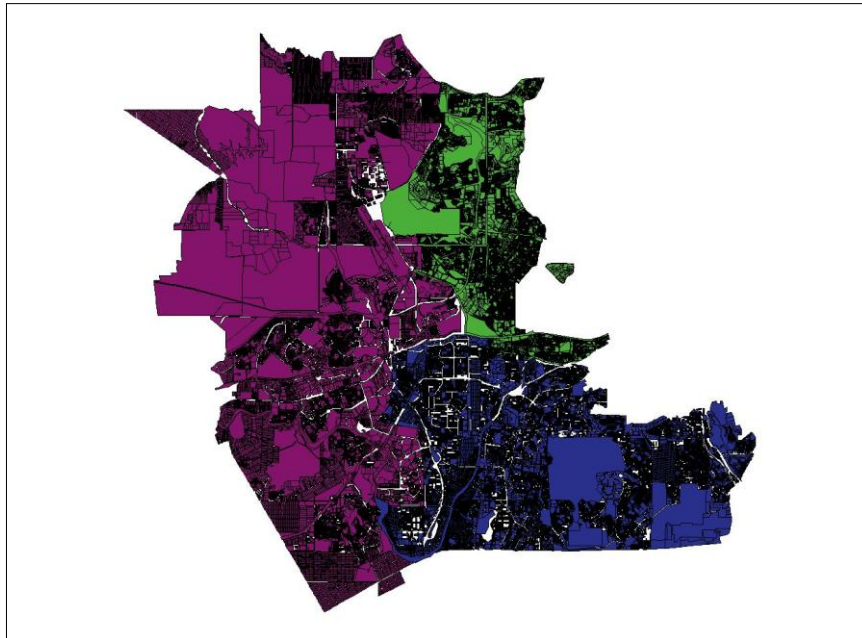


Figure 8. Cities of Shah Alam, Subang Jaya and Petaling Jaya  
Source: JPBD 2004

### **Urban Forms at the Local Level**

To understand the influence of urban form on the liveability of the city, central Shah Alam city is chosen as the case study. The original site of this city was an oil palm plantation. The idea to build this city started in 1963 after the success of the industrial and residential area for Petaling Jaya city development. The Shah Alam project was the first city initiated and built after Independence from the British. The proposal for this city is based on a master plan for the whole central Shah Alam, which is also called, the core for Shah Alam, which is the first planned state capital for Malaysia. Location wise, Shah Alam has the advantage of being close to Kuala Lumpur and in the centre of potentially rich area for city development. The original master plan of Shah Alam is shown in Figure 9 bounding an area of 41.69 sq. km. However, since that time we can



identify three major different steps in the implementation of the current development undertaking, filling the old master plan with new development initiatives in response probably to the market demand, especially with housing prices that can guarantee the viability of the whole city project.

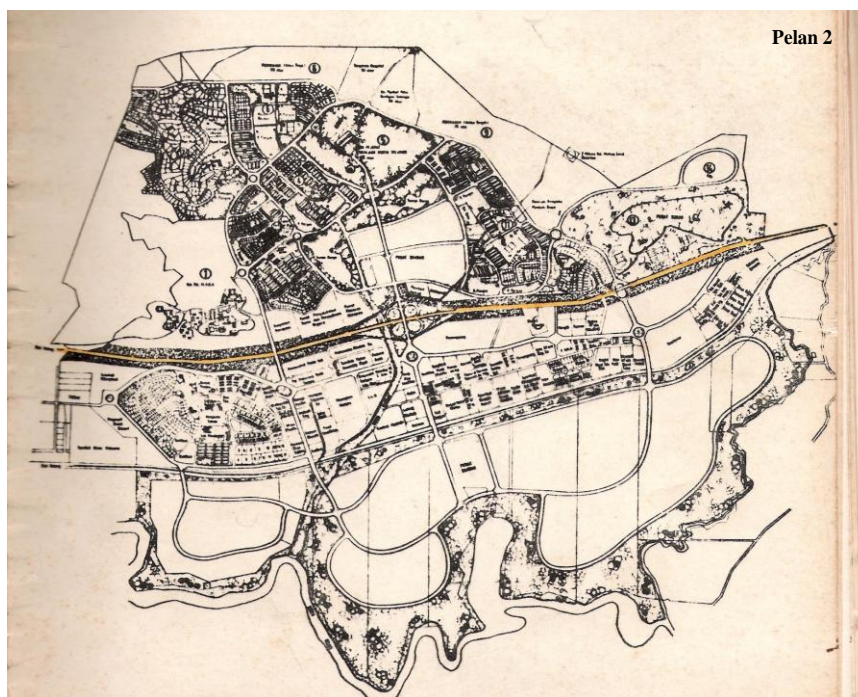


Figure 9. Masterplan for Central Shah Alam  
Source: Unit Perancang 1978

This central portion of Shah Alam comprises wards, called sections. There are 24 sections in the central Shah Alam. Figure 10 shows the full development of this area and Table 1 is the breakdown of the land uses in each section. The sizes of the sections are variable, some are very big while others are smaller. What is the basis used in determining the size of each section is not known. Physically, each section looks compact, but each section carries a density of built-ups, that varies from 3 – 18 units per acre, except for section 16 where its density is 38 units/acre. The density is calculated by taking the gross area of the section divided by the number of residential units in that section. The differences in density partly reflect the types of houses found in each section which are either

detached, semi-detached, terraces or multi-storey houses. The section that has a high density reflects that it carries multi-storey residential units.

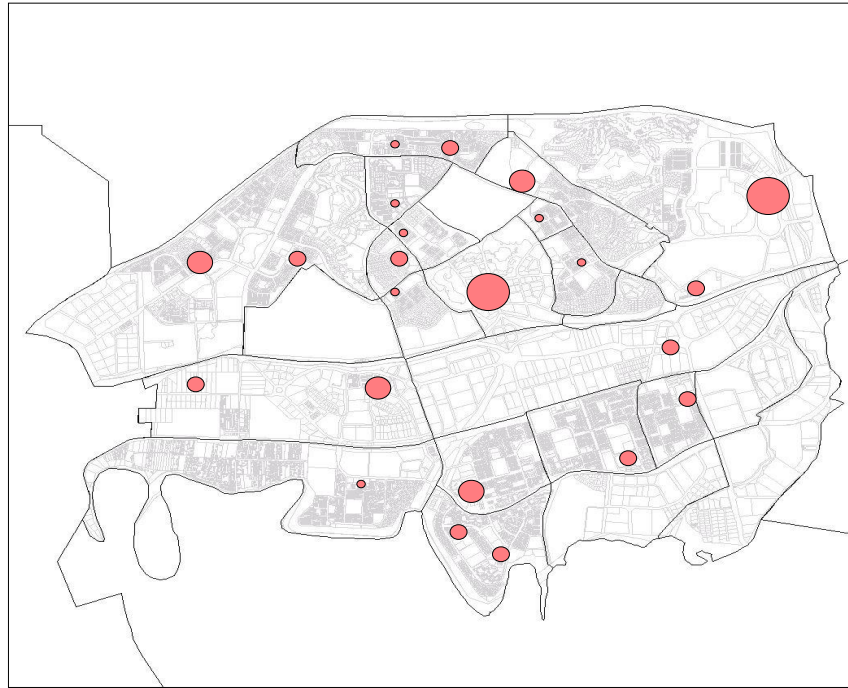


Figure 10. Neighbourhood centre and city centre for central Shah Alam

Source: Modified from Draft Local Plan for Petaling District and Part of Klang District 2003 – 2020 (JPBD Semenanjung Malaysia 2004)

The development of the central Shah Alam is based on the neighbourhood concept, where each section supposes to be self-contained. This type of development concept has been practiced in almost all new towns development in Malaysia. Every section is required to have its own public facilities such as a praying house 'surau', a community hall, a kindergarten, a playground and convenient shops. Main public facilities for example a mosque and schools are located in the 'centre' of several neighbourhoods for city community use.

Table 1. Land uses for central Shah Alam

Section	Landuse	Residential Units	Section Area (Acres)	Section Area (Hectares)	Density of residential/acre	Land % for Section
1	University	-	362.99	146.9	-	4.3
2	Mixed residential area	498	145.79	59	3.4	1.7
3	Mixed residential area	261	74.87	30.3	3.5	0.9
4	Mixed residential area	568	90.93	36.8	6.2	1.1
5	State office	-	138.13	55.9	-	1.6
6	Mixed residential area	1280	126.27	51.1	10.1	1.5
7	Residential	-	1110.73	449.5	-	13.1
8	Mixed residential area	2211	230.05	93.1	9.6	2.7
9	Residential	-	242.66	98.2	-	2.9
10	Mixed residential area	359	42.26	17.1	8.5	0.5
11	Mixed residential area	787	134.92	54.6	5.8	1.6
12	Mixed residential area	106	84.51	34.2	1.3	1.0
13	Residential	-	1222.67	449.8	-	14.4
14	Shopping mall, office buildings, museum, state mosque and urban parks	-	299.24	121.1	-	3.5
15	Industry	-	807.78	326.9		9.5
16	Industry and housing	3500	658.78	266.6	38	7.7
17	Mixed residential area	2910	711.91	288.1	4.1	8.4
18	Mixed residential area	3875	238.99	96.7	16.2	2.8
19	Mixed residential area	3376	258.22	104.5	13.1	3.0
20	Mixed residential area	2583	140.36	56.8	18.4	1.6
21	Industry	-	234.5	94.9	-	2.8
22	Industry	-	527.57	213.5	-	6.2
23	Industry	-	345.7	139.9	-	4.1
24	Mixed residential area	4896	280.22	113.4	17.5	3.3
<b>Total</b>		<b>27210</b>	<b>8510.05</b>	<b>3398.9</b>	<b>-</b>	<b>100.0</b>

Source: Majlis Bandaraya Shah Alam 2006

At the centre of Shah Alam city is its central business district (CBD) area. However, over the years the main functions found in Shah Alam CBD are being dispersed to a few locations within the larger Shah Alam city. The dots in Figure 10 represent the neighbourhood centres (the small dots) vis a vis the main centres. The neighbourhood centres have shop houses while in the main centres are free standing shopping complexes.

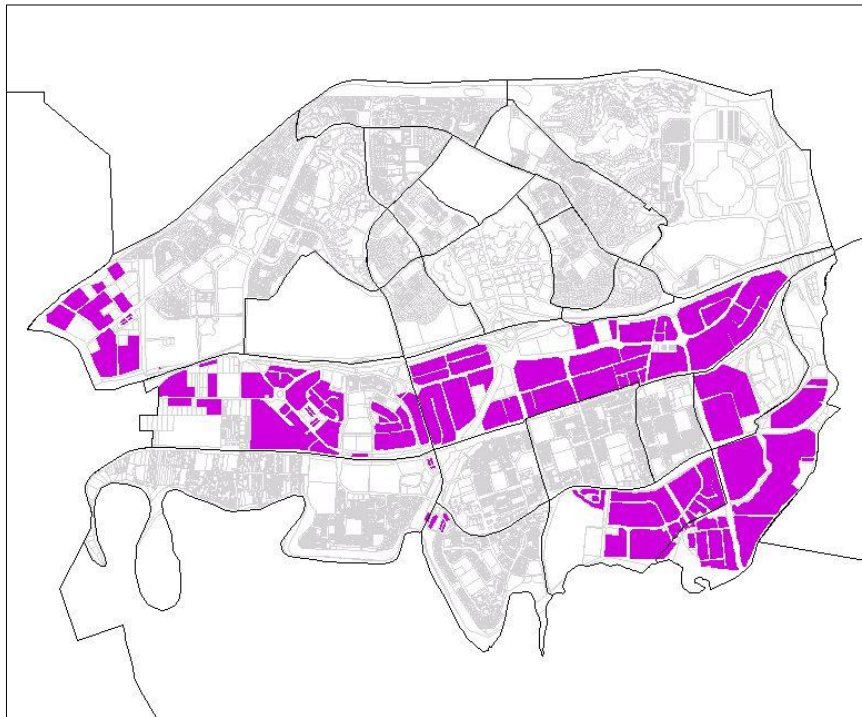


Figure 11. Industrial area for Central Shah Alam  
Source: JPBD Semenanjung Malaysia 2004

In Figure 11, the industrial area is shown to cover almost one-quarter of central Shah Alam. In fact this industrial area is the main catalyst for the vibrancy of Shah Alam economic life. However, from these diagrams, one might raise the question, 'is there any specific formula in determining the size of sections, type of land uses and the number of city centres'? The answer remains in the hand of the city planners who plan for the needs of the day.



Table 2. Total population by ethnic, Section 1– 24 Shah Alam, Selangor, 2000

Section	Malay	Other Bumiputera	Total Bumiputera	Chinese	Indian	Others	Total Citizen	Foreigners	Total
1	8,627	246	8,873	-	-	6	8,879	245	9,124
2	1,882	40	1,922	136	123	12	2,193	61	2,254
3	3,481	19	3,500	84	364	11	3,959	56	4,015
4	1,530	15	1,545	123	102	3	1,773	25	1,798
5	493	1	494	41	32	-	567	24	591
6	3,725	99	3,824	211	194	34	4,263	91	4,354
7	6,517	80	6,597	593	282	21	7,493	289	7,782
8	8,495	208	8,703	562	1,183	30	10,478	217	10,695
9	6,137	47	6,184	977	292	53	7,506	254	7,760
10	2,221	13	2,234	214	130	12	2,590	49	2,639
11	2,407	5	2,412	421	208	9	3,050	96	3,146
12	640	2	642	121	39	10	812	95	907
13	3,416	36	3,452	1,111	233	125	4,921	523	5,444
14	1,099	11	1,110	28	115	4	1,257	30	1,287
Sub-total	50,670	822	51,492	4,622	3,297	330	59,741	2,055	61,796
%	84.82	1.38	86.19	7.74	5.52	0.55			
15	729	7	736	25	58	1	820	7	827
16	4,372	31	4,403	168	635	8	5,214	292	5,506
17	15,215	96	15,311	800	2,104	65	18,280	479	18,759
18	12,584	57	12,641	883	2,181	56	15,761	209	15,970
19	13,855	75	13,930	777	2,399	76	17,182	282	17,464
20	6,670	25	6,695	288	1,696	26	8,705	258	8,963
21	1,365	20	1,385	38	103	43	1,569	170	1,739
22	178	2	180	36	46	-	262	11	273
23	1,253	19	1,272	402	385	7	2,066	57	2,123
24	14,076	212	14,288	1,277	1,811	25	17,401	322	17,723
Sub-total	70,297	544	70,841	4,694	11,418	307	87,260	2,087	89,347
%	80.56	0.62	81.18	5.38	13.09	0.35			
Total Population	120967	1366	122333	9316	14715	637	147001	4142	151143
%			83.22	6.34	10.01	0.43			

Source: Statistic Department 2006

Table 2 showed the population structure of central Shah Alam. The majority of its population are Malays, followed by Indians and Chinese.

Hence, Shah Alam is known as a Malay or Muslim city. Therefore the public facilities provided for this city are suited towards accommodating the requirement of this major ethnic group, although the ethnic groups have access also to their respective religious needs.

Physically, the central Shah Alam is divided by the Federal Highway. Thus the population in the table is also divided into two parts. For convenience, let sections 1–14 stay in group one and sections 15–24 on the other side of the Federal Highway in group two. Though group one has more sections it is less populated compared to group two. This is due to the type of development allocation in the plan; residential area is designated in group one area without industries while the type of residential units developed in group two is the high density type – more multi-storey and less detached building, accommodating perhaps the needs of the industrial core of Shah Alam.

From preliminary observations it becomes obvious that some components of the urban form in the study area display homogeneity. Others are being made lively by activities throughout the day, seen such as in the activities organised around the prayer house- the 'surau'. However, the Shah Alam lake area of 127.8 acres is where the essence of a liveable city seems to take place. Besides acting as the green lung for the city, the lake offers a variety of multi level activities with clear specialised happenings according to time and space in the lake area. Definitely, the lake area is strategically positioned to link people to shopping points, recreational spots in an invigorating green environment, to open spaces and to religious points. Indeed the micro urban forms in the city centres evoke deeper meanings to those who seek tranquillity in the midst of the hustle and bustle of heavy schedules of modern living in the central Shah Alam area. The essence of liveable city is partly captured within the lake area. More in-depth research needs to be carried out.

## CONCLUSION

In concluding this paper, all in all the urban form for a state like Selangor can be distinguished into three levels, that is the metropolitan city form (Shah Alam, Subang Jaya and Petaling Jaya) as the macro level, then the whole city of Shah Alam as the meso level, finally urban forms in each section representing the neighbourhood for the core city of Shah Alam. However, the hierarchies of structures in the urban form such as roads and highways and variations of land-uses filling the spaces in between these structures determine the densities of the urban forms, irrespective of

the levels of urban forms. Thus the micro urban forms that are the neighbourhood become the basis of delving into the liveability of Shah Alam. Still, the meaning of a liveable city carries a lot more than just filling the whole space of the city.

Going by the preliminary findings, from the observations, the research establishes a strong relationship between the urban form and the liveability of the city. After 30 years of developing the city centre, the shaping-up of the core city has almost reached its final touch. People had started to move into the core city strongly in the early 1970s based on phases of the development of each section. From the age of the trees lining-up the major roads in the city's central area the physical environment in the centre has now achieved tranquillity with lush green canopies. Being planned as a low density development the city central area has maintained the set density and therefore complied with the original planned requirement. From the Central Business District (CBD) the low density development has increased slowly to the periphery, hence making the city a private 'transportation dependent city'. Yet being private transport dependent does not cause much problem as the urbanites seem to be well endowed with transportation facilities as well as access to alternatives.

#### REFERENCES

- Alberti, M. 2000. Urban form and ecosystem dynamics: empirical evidence and practical implications. William K, Burton E, & Jenks, M. (eds.). *Achieving sustainable urban form*. London: E. & F.N. Spon.
- Ali Madanipour. 1996. *Design of urban space: an inquiry into a socio-spatial process*. Newcastle-upon-Tyne: John Wiley & Sons.
- Auckland City. 2000. *Growing our city: through liveable communities 2050*. Auckland City.
- Cohen, N. 2001. *Urban planning conservation and preservation*. New York: McGraw-Hill.
- Douglass, M., Trung Quang Le, Cameron Kawika Lowry, Hao Thien Nguyen, Anh Nguyen Pham, Nghi Dong Thai, & Hernani Yulinawati. 2004. The livability of mega-urban regions in Southeast Asia - Bangkok, Ho Chi Minh City, Jakarta and Manila compared. International Conference on The Growth Dynamics of Mega-Urban Regions in East and Southeast Asia, 24 - 25 June 2004, Singapore.
- Dovey, K. 1999. *Framing places: mediating power in built form*. London: Routledge.
- Eastaway, M.P. & Stoa, E. 2004. Dimensions of housing and urban sustainability. *Journal of Housing and the Built Environment*, (19):1-5.
- Frey, H. 1999. *Designing the city: towards a more sustainable urban form*.

- London: E.& F.N. Spon.
- Girardet, H. 2004. *Cities people planet: liveable cities for a sustainable world*. West Sussex, UK: John Wiley & Sons Ltd.
- Google Earth. 2007. <http://earth.google.com/tour/thanks-win4.html>. Retrieved 29 January.
- Haughton, G. & Hunter, C. 1994. *Sustainable cities*. London: Jessica Kingsley Publishers Ltd.
- Heuvel, C. 2000. The built environment and its development. Millward, D. (ed.). *Construction and the built environment*. London: Longman.
- Jabatan Perangkaan Malaysia. 2006. *Cabutan daripada banci penduduk dan perumahan 2000: taburan penduduk mengikut kawasan Pihak Berkuasa Tempatan dan Mukim*.
- JPBD. 2003. *Laporan Pemeriksaan Rancangan Struktur Negeri Selangor*. Jabatan Perancangan Bandar dan Desa Negeri Selangor dan Jabatan Perancangan Bandar dan Desa Semenanjung Malaysia.
- JPBD. 2004. *Draf Rancangan Tempatan Daerah Petaling dan Sebahagian Daerah Klang*. Jabatan Perancangan Bandar dan Desa Semenanjung Malaysia, Jabatan Perancangan Bandar dan Desa Negeri Selangor, Majlis Bandaraya Shah Alam, Majlis Bandaraya Petaling Jaya dan Majlis Perbandaran Subang Jaya.
- Kivell, P. 1993. *Land and the city: patterns and processes of urban change*. London: Routledge.
- Knox, P.L. 1994. *Urbanization: an introduction to urban geography*. New Jersey: Prentice-Hall.
- Lim, Heng Kow 1978. *The evolution of the urban system in Malaya*. Kuala Lumpur: Penerbit Universiti Malaya.
- Macionis, J. & Parrillo, V. 1998. *Cities and urban life*. New Jersey: Prentice Hall, Inc.
- Majlis Bandaraya Shah Alam. 2006. Maklumat gunatanah Shah Alam.
- Malaysia. 2006. Ninth Malaysia Plan. Putrajaya: Prime Minister's Department.
- Martin, L. 1972. The grid as generator. Martin, L. & March, L. (eds.). *Urban space and structures*. London: Cambridge University Press.
- Martin, L. & March, L. (eds.). 1972. *Urban space and structures*. London: Cambridge University Press.
- Metcalf, G. 2002. *Transportation for a livable city: the path to a livable city*. [www.livablecity.org/resources/tlc\\_path.pdf](http://www.livablecity.org/resources/tlc_path.pdf). Retrieved 19 January 2006.
- Newman, P. & Kenworthy, J. 2000. *Sustainable urban form: the big picture*. In *Achieving sustainable urban form*, edited by William, K., Burton, E. and Jenks, M. London: E & FN Spon.
- Newton, P.W. (ed.). 1997. *Re-shaping cities for a more sustainable future: exploring the link between urban form, air quality, energy and greenhouse gas emissions*. Melbourne: Commonwealth Scientific and Industrial Research Organization Building, Construction and Engineering.
- Ooi, Jin-Bee. 1963. *Land, people and economy in Malaya*. London: Longmans, Green and Co Ltd.

- Ravetz, J. 2000. *City region 2020: integrated planning for a sustainable environment*. London: Earthscan Publications Ltd.
- Sharifah Norazizan Syed Abdul Rashid, Aishah Edris, Nobaya Ahmad. (eds.). 2002. *Cities in the 21<sup>st</sup> century: urban issues and challenges*. Serdang: Universiti Putra Malaysia Press.
- Shortell, T. 2005. *Inequality in contemporary American society: globalization*. [www.shortell.org/courses/cs3/globalization.html](http://www.shortell.org/courses/cs3/globalization.html). Retrieved 14 January 2006.
- Timmer, V. & Seymoar, N.K. 2004. The livable city. World urban forum 2006. Vancouver. [www.icsc.ca](http://www.icsc.ca).
- Tsai, Yu-Hsin. 2004. Quantifying urban form: compactness versus 'sprawl'. *Urban Studies*, 42(1): 141-161.
- Unit Perancang. 1978. Outline Report on Development Progress in Shah Alam: Yunit Perancang PKNS.
- White, R. 1994. *The sustainable city – illusion or necessity*. Regional Conference of the International Geographical Union. Prague. [www.utoronto.ca/env/papers/whiter/c\\_prague-paper.html](http://www.utoronto.ca/env/papers/whiter/c_prague-paper.html). Retrieved 16 Jun 2004.

*Institute for Environment and Development (LESTARI),  
Universiti Kebangsaan Malaysia,  
43600 UKM, Bangi, Selango, MALAYSIA.*